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CLAIMS

1. Method for the manufacture of thermoformed bodies, according to which a sheet (15) of thermoformable plastic material is heated to a plasticizing temperature, subsequently causing it to adhere to a shaping surface of a mold (11), comprising the steps of:

- heating the sheet material (15) to a plasticizing temperature, maintaining it in a suspended condition, held along its peripheral edges;

- causing an enrichment of material by pre-shaping the heated sheet (15) of plastic material, at least partially conforming it to a shaping of the mold (11),
10 by performing relative movements of at least part of the peripheral edges of the sheet (15);

- bringing the heated and pre-shaped sheet (15) into an aligned condition with the mold (11), and vacuum forming said pre-shaped sheet (15), making it adhere to the shaping surface of the mold (11).

15 2. Method for the manufacture of thermoformed bodies according to claim 1, characterised by carrying out an enrichment step of the plastic sheet material (15), causing the formation of a sag (15A) in a controlled way, during the heating step.

20 3. Method for the manufacture of thermoformed bodies according to claim 2, characterised by forming, by gravity, a downwardly facing sag (15A), during the heating step.

4. Method for the manufacture of thermoformed bodies according to claim 2, characterised by forming an upwardly facing sag (15A), pneumatically supporting the sheet of material during the heating step.

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5. Method for the manufacture of thermoformed bodies according to claim 1, characterised by pre-shaping the sheet material (15), after the enrichment step, by a shaping plug.

6. Method for the manufacture of thermoformed bodies according to 5 claim 1, characterised by holding the sheet material 15 along the peripheral edges by a variable geometry clamping frame (14) comprising articulated and/or longitudinally sliding frame portions (14A, 14B; 14C, 14D, 14E), and causing an enrichment of the sheet material (15) by a relative movement between the frame portions (14A, 14B; 14C, 14D, 14E) of the clamping frame (14).

10 7. Method for the manufacture of thermoformed bodies according to claim 1, characterised by carrying out the enrichment step of the heated sheet material (15), by a combination of sliding and/or rotational movements for approaching, raising and/or lowering the edges of the plastic sheet (15).

15 8. Apparatus for the manufacture of thermoformed bodies, from a sheet of plastic material (15), comprising:

- a thermoforming mold (11) having a sheet shaping surface (12);
- a movable sheet clamping frame (14) for holding the sheet (15), said clamping frame (14) peripherally extending around the mold (11), and
- clamping means (23, 26) for gripping the peripheral edges of the sheet (15) along at least part of the sides of the clamping frame (14);
- the apparatus also comprises support means (16) for supporting the clamping frame (14), said support means (16) being positioned and conformed to move the clamping frame (14) between a raised and a lowered position with respect to the mold (11);

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- and in which the clamping frame (14) has a geometrically variable shape providing at least a first and a second frame portion (14A, 14B; 14C, 14D, 14E), movable in relation to each other;

- control means being operatively connected to said movable frame

5 portions (14B; 14D), to selectively vary their disposition in conformity with the shaping surface (12) of the mold (11).

9. Apparatus according to claim 8, characterised in that the variable geometry clamping frame (14) comprises clamping means (23, 26) for gripping the plastic sheet (15) along at least part of the peripheral edges.

10. Apparatus according to claim 9, characterised in that the clamping means (23) for gripping the plastic sheet (15), are of mechanical type.

11. Apparatus according to claim 9, characterised in that the clamping means (26) for gripping the plastic sheet (15) are of vacuum operated type.

15. Apparatus according to claim 8, characterised in that the variable geometry frame (14) for holding the plastic sheet (15), comprises slidable and/or pivotally connected frame portions (14A, 14B; 14C, 14D, 14E) disposable on a same plane.

20. Apparatus according to claim 11, characterised in that said vacuum-operated clamping means comprise at least one top open slot (27) along a front side of the clamping frame (14), said slot (27) being connected to a manifold (29) by a plurality of air suction holes (30).

14. Apparatus according to claim 8, characterised in that the variable geometry clamping frame (14) has peripheral edges provided with longitudinal slots (27) connectable to an air suction source.

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15. Apparatus according to claim 8, characterised in that the variable geometry clamping frame conforms to the geometrical pattern of the peripheral edges of the mold (11).

16. Apparatus according to claim 13, characterised in that the variable geometry clamping frame (14) comprises a first and a second top-open suction slots parallelly extending along opposite sides, and in that a bar (31) having a smaller width than the slots (27) is provided slightly spaced apart and above the bottom wall of each slot, said bar (31) defining together with said bottom wall a narrow air flow passage communicating with said air suction holes (30).